

WCCC 2019: The 25th World Computer Chess Championships

Provisional report

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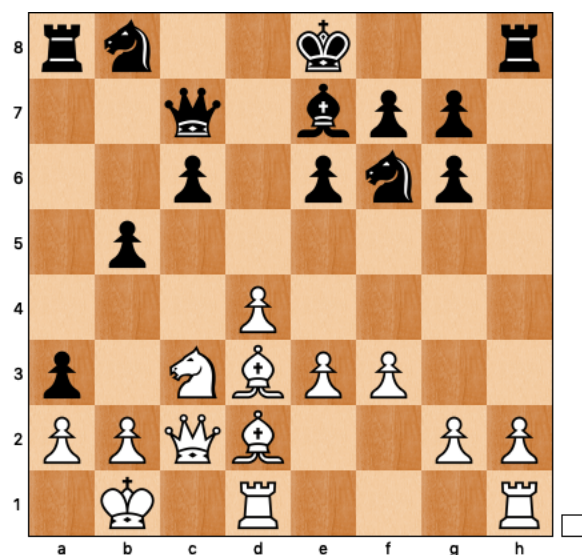
Amersfoort, the Netherlands, Leiden, the Netherlands, Reading, UK

The 25th World Computer Chess Championship started on August 13, 2019. Six programs as in table 1 participated in a double round robin tournament of ten rounds. The tournament took place at the Venetian in Macau, China and was organized by the ICGA. The venue was part of the 28th International Joint Conference on Artificial Intelligence (IJCAI-19) who acted also as the main sponsor. The other important sponsor was Digital Game Technology (DGT) for the electronic chess boards. Chessbase donated an extra prize for the first position. The WCSC was held in conjunction with the 9th World Chess Software Championship (WCSC) and the 2019 World Computer Speed Chess Championship. The classical tempo of 1h30'+15'' per move for both sides was the one adopted.

Round 1

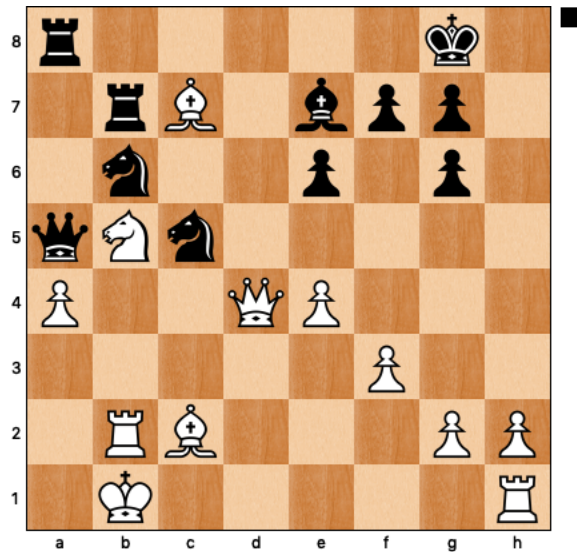
1 Chiron	- Ginkgo	1/2
2 Shredder	- Komodo	1/2
3 The Baron	- Jonny	0-1

The Baron started the official World Championship in a good mood and had prepared an opening with a frivolous aspect. The castling to the queenside of the white king was for Jonny a sign to vigorously attack. He brought his a-pawn to a3 and a majority of his pieces to the queenside. In the diagram position white has the choice between b3 and the move which he chose Nxb5. The last move is very speculative and led to a dynamic position.



White played 16. Nxb5 and returned after 16. .. Qb5 17.Nc3. White had hoped to have some time for adequate protection of the king and played as follows: 17. .. axb3 18. Bc4, Na6 19. Qxb2, Qa7 20. Bb3, O-O 21. Be1, Rfb8 22. Bg3, Rb7 23. e4, c5 in order to give his knight a

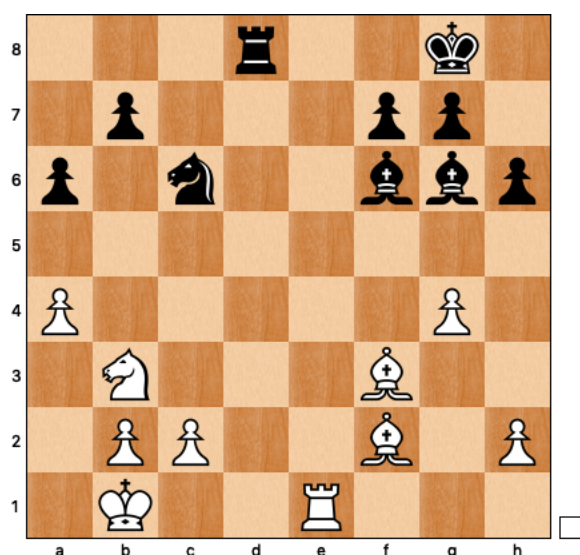
support. But in fact the whole white position was not stable. The continuation looked as a movie where the Baron found each time a clever defense. Nevertheless experienced chess players feel that there would come an end to the list of clever moves. That happened on move 30. .. when black played Ncxa4, see diagram.



At this moment the white position collapsed. Black had computed the consequences deeply and saw that it could complete the combination by a knight fork with check in it. That made the material differences in favour of black, hence white resigned.

In the game Shredder – Komodo the Semi Slav appeared on the board. There are many variants that have also been played in this tournament. Komodo tried to play original but could only bring disbalance in the position by sacrificing a pawn. Erdogan Gunes: ‘In my opinion black had more than sufficient compensation.’ For white the sacrifice was a sign to take the pawn and to try to play as safely as possible. White succeeded in this policy and black had to find ingenious moves to keep the fight going. Komodo performed this task excellently but could never achieve more than a draw which was agreed on move 38.

In the game Chiron – Ginkgo a well-known variation of the Sicilian Najdorf came on the board. The play was accurate and never surprising. There was one position in which a far-reaching decision was taken by white. See the diagram.



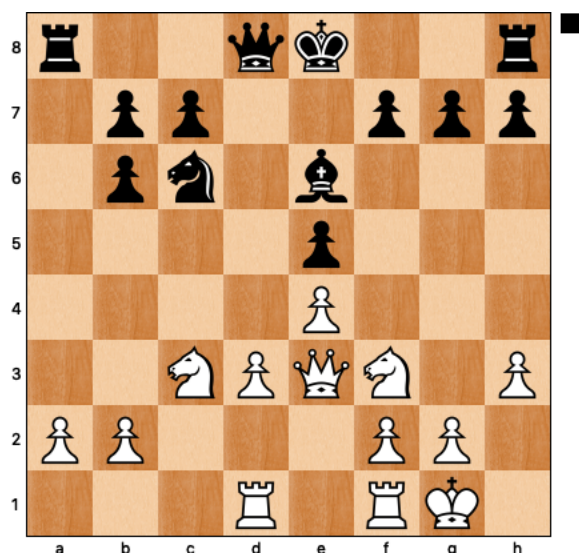
White decided to give black the advantage of the bishop pair with as compensation a destroyed pawn structure for black. The idea did not give white the advantages it had hoped for, but the decision was well founded as during the remainder of the game black had to take care of the protection of the a- and c-pawns. White was never in a advantageous position but also not in a threatful position. Subtle maneuvering led to a draw.

Round 2

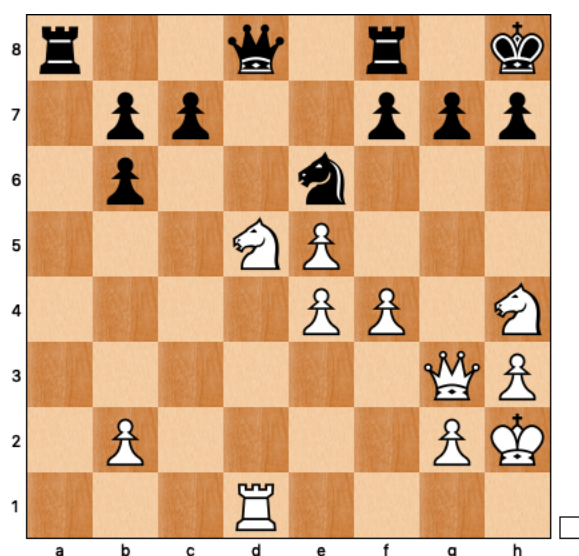
1 Ginkgo	- Jonny	1/2
2 Komodo	- The Baron	1-0
3 Chiron	- Shredder	1/2

The game Ginkgo – Jonny was a fight of high level in which the draw area was never left by one of the opponents. Of course, they created small threats with a positional value. And at one point looked that white had been played a bit optimistically, but in practice there were no consequences for such a potential view. The game continued quietly, and the draw was a clear result of equal strength.

Komodo – The Baron was new challenge for The Baron to keep itself up and running against the current world champion. However, being world champion only is not sufficient for winning the game. The authors (and operator) are well aware of their responsibility. Moreover, operator Erdogan has a hand in the program as the opening book builder. This responsibility implies that some risks have to be taken in order to obtain chances for winning the game. In this game white should use black to take a pawn on a2 and to continue with the possible winning of the exchange. See diagram.



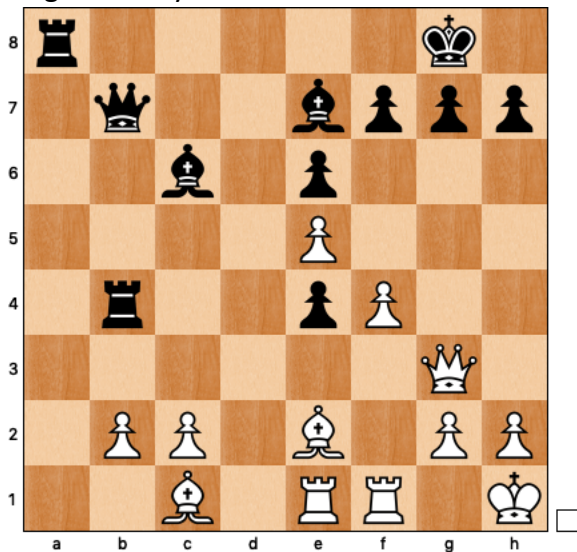
In this position black took the pawn on a2 and after white's occupation of the center it allowed black to gain the exchange. Meanwhile white rearranged its pieces in the center with an eye on the possibilities for a king attack. See diagram.



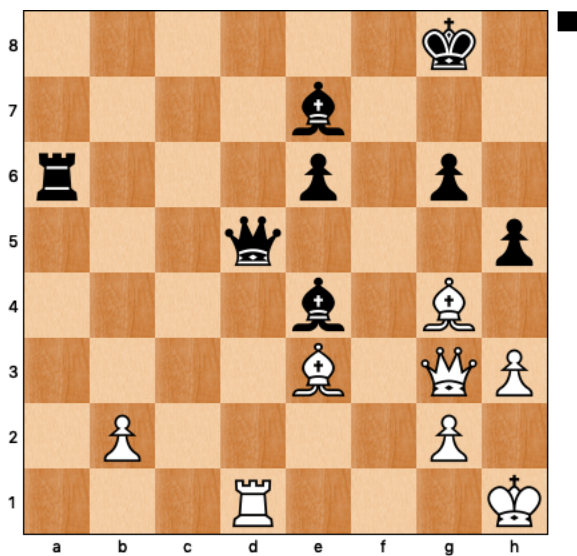
The difficulty which black is facing is best expressed as: 'where do I place my knight?'. What happened is that the knight could not find a safe place and was finally taken by white at the cost of a pawn and the exchange of a rook. But the two knights were far superior in the resulting end game over the black rook. The resignation was not unexpected. Computer programs had at that moment an evaluation of +8 although human beings still had to compute the lines, but every chess player understands that white is the winning side.

The game Chiron – Shredder started as a Scheveninger Sicilian. This is one of the most frequently played openings in the chess world and therefore discussing the opening could take pages or could be completed by a reference to the literature. We do so because the first 24 moves were in the books of the programs. Thereafter started a fascinating game for human beings. If you replay the game you will be impressed on the possibilities that emerged from the position on the board. It is a labyrinth of good positions in that position. It will be a joy for human beings to analyze this game. When asking Andrea Ubaldo on his opinion of the game, he answered: 'It was a boring game. After the opening both programs agreed on a zero

evaluation and throughout the game it remained a zero evaluation.' When checked this opinion with Stefan Meyer-Kahlen, he stated: 'yes I fully agree with the zero evaluation remark and from myself I did not understand what was happening. Because the possibilities were too numerous and too distinctive from each other. Only a program can find the best lines along the moves and remain on the correct path.' For this reason illustrate this game by diagrams only. We start with the end of the opening book:



White played f5 which was not in the opening book. Thereafter followed: 25. .. exf5 26.Rxf5 e3 27.Rg1 g6 28.Rf4 Rxf4 29.Qxf4 Ra1 30.Qg3 Be4 31.e6 fxe6 32.Bg4 Qd5 33.Qh3 Ra6 34.Bxe3 Bxc2 35.Qg3 Be4 36.h3 h5 37.Rd1



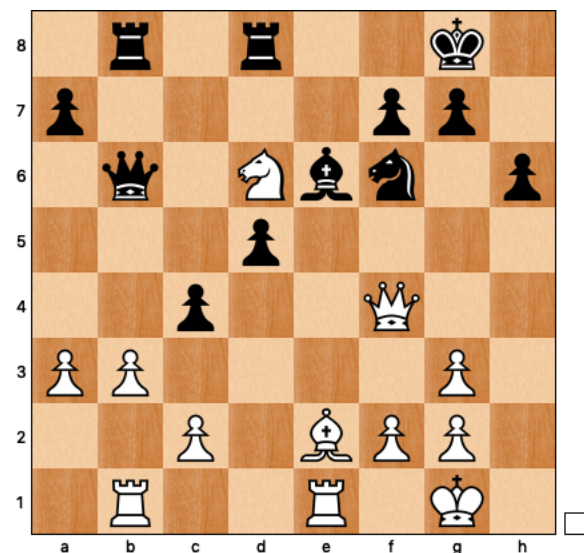
37. .. Bxg2+ 38.Kh2 Qb3 39.Bxh5 Be4 40.Bxg6 Qxb2+ 41.Rd2 Bd6 42.Qxd6 Rxd6 43.Rxb2 Bxg6 and a draw was agreed.

Round 3

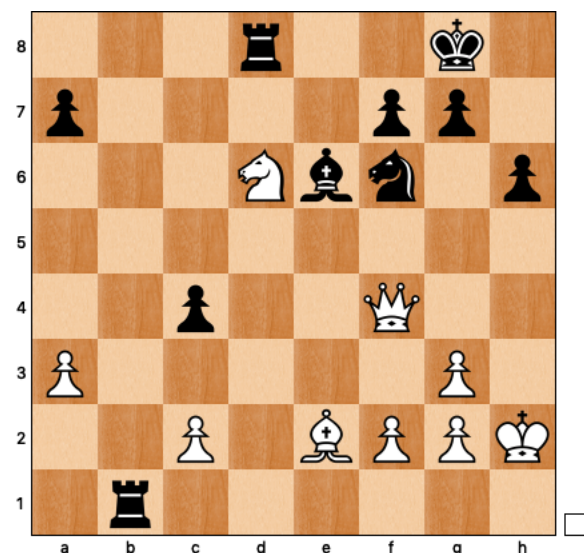
1 Shredder	- Ginkgo	1/2
2 The Baron	- Chiron	0-1
3 Jonny	- Komodo	1/2

Shredder – Ginkgo played a kings Indian variation. Apparently the programs had respect for each others playing strength. Now and then they played a bit progressive (aggressive would not be the proper word) but any action undertaken in this way did result in a real threat. If you replay the game fast in your mind then there are some small fluctuations. But deeper analysis shows that the game never had strong distinctive local optima. It was a game exciting for people who would like to find the truth, however the programs agreed on the truth precisely in the middle. Hence they agreed to a draw.

The Baron played the four knights opening and managed to arrive in a comfortable position. Still comfortable positions are difficult to play by its easiness and the hidden pitfalls which are only visible at deeper layers at the search tree. What holds for the Baron concerning the bad moves and pitfalls has a reversed nature for its opponent Chiron. White has progressed its knight to d6 and now forced to play Nf5. However the program believed that bxc4 was possible. To its surprise black took up the chance and reacted with a solid reply.



23. .. Qxb1 24.Rxb1 Rxb1+ 25.Kh2 dxc4



This is the crucial position. Obviously Bc4 is impossible by Ng4+ followed by Kh3 and Rh1# but there are two possibilities which are better than the move played: 26. g4 and 26. Bf3. As the game went black obtained the upperhand.

26.f3 Re1 27.Bxc4 Bxc4 28.Nxc4 Rdd1 29.g4 h5 30.Kg3 hxc4 Although this position has an evaluation of -1.6 for white it can be seen as the start of playing a lost situation as good as possible. White is doing that but the best reward is delay of defeat. The following moves show this clearly: 31.Qc7 Kh7 32.Kf2 Nh5 33.fxc4 Rf1+ 34.Ke3 Nf4 35.Qa5 Nxc2+ 36.Ke2 Nf4+ 37.Ke3 Rde1+ 38.Kd2 Re2+ 39.Kc3 Rff2 40.Kb3 Rxc2 41.Qf5+ Ng6 42.Qh5+ Kg8 43.Qa5 Nf8 44.Qxa7 Rce2 45.Kb4 Rf4 46.Kb5 Rxc4 47.a4 Rg5+ 48.Ka6 Re6+ 49.Nb6 Rge5

In the last position the evaluation is not clear for humans but the more so for computer who believe the proper evaluation of -8 for white. No wonder that white resigned.

Some games are a pleasure to replay since you see many nice and interesting variations tumbling over the board. Other games are a challenge for the spectators since they wait for exciting maneuvers or for surprising attacks. In the game Jonny against Komodo we saw chess of the highest caliber. Two very good documented and with excellent search functions equipped programs were fighting each other. However, their fight was subtle, repetitive and not challenging the brains of the human replayer. It was chess, chess and once more chess. The play was of high standard, but it remained all in the draw area of plus or minus 0.001.

Standing after round 3: 1. Jonny, Komodo, Chiron 2;4. Shredder, Ginkgo 1.5; 6. The Baron 0.

Round 4

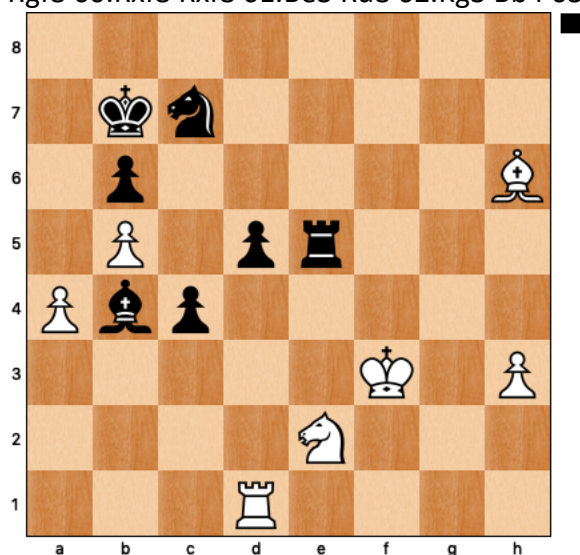
1 Ginkgo	- Komodo	0-1
2 Chiron	- Jonny	1/2
3 The Baron	- Shredder	0-1

The preparation of world champion Komodo has been excellent and is also to be characterized as trying to find the borders of what is just possible to start a real fight. Current openings theory is worked out almost up to the end with as a verdict equal play. Then it is the task of the computers to prove that this statement is true, which in many cases happens to be the case. Interestingly there are also position which are less frequently played and where the outcome has a wider area of uncertainty. Erdogan Gunes together with his team mates from Komodo has tried to specialize in incorporating special variations which are sidelines from the main variations. These variations may give support to original play in double edged positions. Sometimes it is very hard to see how it works out and how Komodo can make use of the risks it has taken. In this game it looks that the not so frequently played opening is the start for a fight but white played very accurately and precise. Therefore, it took a long time for the main ideas of Komodo came to the surface. Having said this the reader should keep in mind the importance of the center pawns even if they are blocked. We refrain from analyzing the first 51 moves and start with move 52. See diagram.



At this moment white was challenged to play the breakthrough move f5. Looking at the pawn structure we see that white has a majority of pawns at the queenside (a,b versus b) and a majority on the kingside (f,g,h against g,h). The black pawns in the center seem to be blocked and white believes that is possible to keep that blocking during the rest of the game. It turns to be not through and it is the credit of Komodo to have recognized this opportunity.

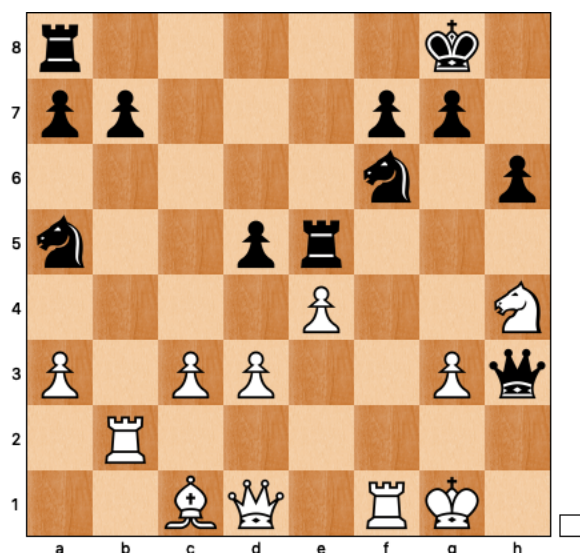
52.f5 Nb3 53.Rd1 exf5 54.Bf2 Bg5 55.gxf5 gxf5 56.Nd4 Nxd4 57.Rxd4 Be7 58.Rd1 Rad8 59.Rxf5 Rgf8 60.Rxf8 Rxf8 61.Be3 Rd8 62.Kg3 Bb4 63.Ne2 Re8 64.Kf3 Rxe5 65.Bxh6 See diagram.



This position was aimed at by Komodo. The two past pawns in the center are compensated by a worthless h-pawn which needs much support. Black has to develop now a winning plan.

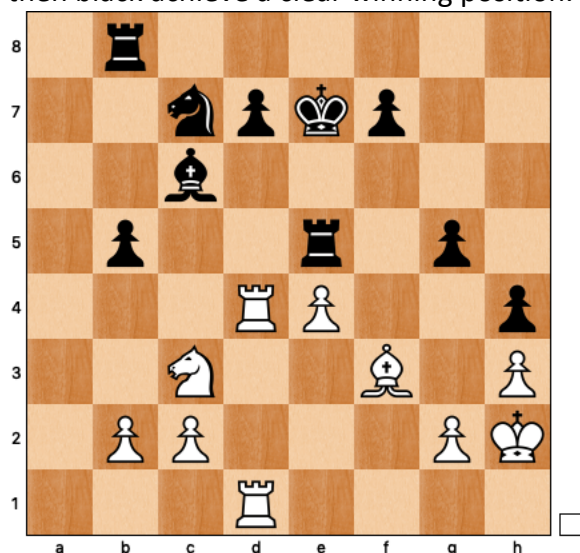
Komodo does so adequately, see the following series of moves: 65... Ne6 66.h4 Bc5 67.Bd2 d4 68.Nf4 Nxf4 69.Bxf4 Re7 70.h5 c3 71.h6 Rf7 72.Rg1 Bf8 73.Rh1 d3 74.Ke4 d2 75.h7 Bg7 76.Bxd2 Re7+ 77.Kd3 Rd7+ 78.Kc2 Rxd2+ 79.Kc1 Bh8 80.Rh6 Rf2 81.Rh4 Rg2 82.Rf4 Rg7 0-1

From the beginning both players, Chiron and Jonny, showed equal strengthness. They played an original path in the opening but nothing special happened up to move 19 when Chiron saw the opportunity of sacrificing the exchange. See diagram.



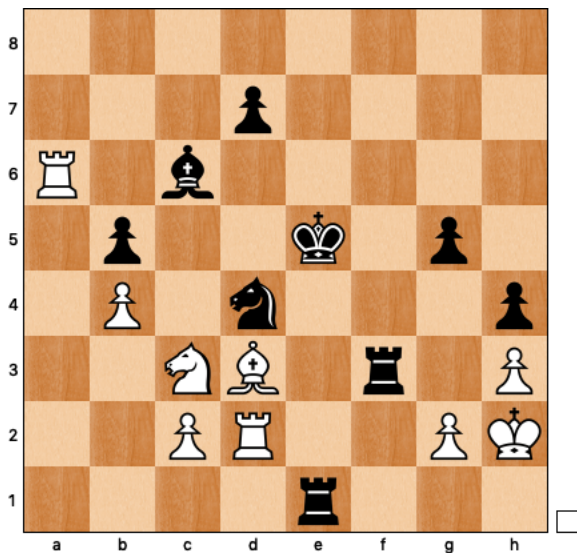
19. Rxf6 gxf6 20. Bf4 Black saw the dangers in which he had to counter quiet clearly and decided to reimburse white by immediately returning the advantage of the exchange. 20. ... Nc6 21. Bxe5 Nxe5 22. exd5 Re8 Now the position is understandable by the programs and they agreed that it is an equal game. Nevertheless they continued to play as follows: 23. Qf1 Qc8 24. Rc2 Ng4 25. Re2 Kf8 26. Rxe8+ Qxe8 27. Nf5 Ne3 28. Nxe3 Qxe3+ 29. Kg2 Qd2+ 30. Qf2 Qxd3 31. Qc5+ Kg7 They did so to test the opponents alertness. Having seen that both sides had control on the dynamics of the positions whereafter they completed the game by: 32. d6 Qe2+ 33. Kh1 A draw was agreed.

The Baron - Shredder was a game of maneuvering. The Baron was well prepared and maneuvered originally very well. Still in the complications of the midgame black could equalize the position completely and was thereafter fighting for the upperhand. This required a playing forwards and backwards and a kind of seducing white to place its pieces on the near optimal squares. Some of the near optimal moves led to a position in which black obtained more space and was even able to penetrate the white position. However penetrating did not mean gaining material or creating a mating network. However in difficult position white made a mistake and then black achieve a clear winning position. See diagram.



White played 26. Rb4 instead of 26. b4. After Rb4 the evaluation function went down and by strong play from black's side it went further down in the next 10 moves. In the next diagram

the position was already lost and therefore white's move Rd1 cannot be considered a blunder. But after this move black made undoubtedly a convincing end to the game.



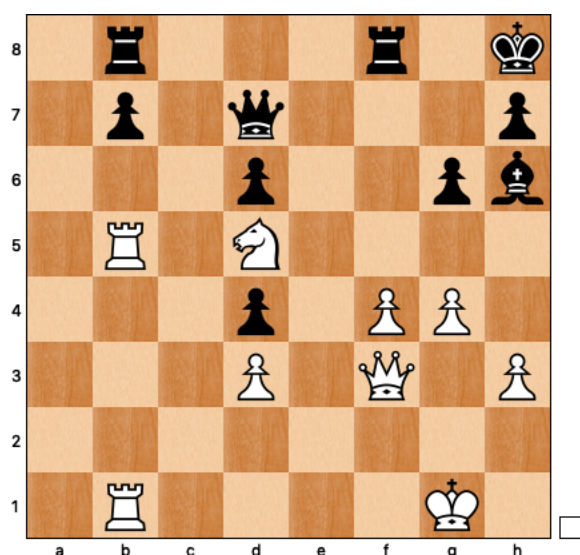
36.Rd1 Rf8 37.Rd2 Re1 38.Ra6 Rf4 39.Na2 Rf3 40.b4+ Kd5 41.Be2 Rf4 42.Bd3 Ke5 43.Nc3 Rf3 44.Rd1 Rxd1 45.Nxd1 Rg3 46.Bf1 Nxc2 47.Ra2 Nxb4 48.Re2+ Kd4 49.Rd2+ Kc5 50.Nf2 Ra3 51.Rb2 d5 52.Rb1 d4 53.Rd1 Rc3 54.Kg1 Nc2 55.Rb1 Ne3 56.Nd3+ Kb6 57.Ne5 Nxf1 58.Kxf1 Rc2 and white gave up.

Standing after round 4: 1. Komodo 3; 2. Shredder, Jonny, Chiron 2.5; 5. Ginkgo 1.5; 6. The Baron 0.

Round 5

1 The Baron	- Ginkgo	1/2
2 Jonny	- Shredder	1/2
3 Komodo	- Chiron	1/2

In this round The Baron showed that his structure had the right nature for a chess player. Not being depressed by the four zeros he had to accept so far. He played Ginkgo and saw that his efforts produced fruits and small successes. A small success has defined as reaching a position with chances for a win. The opening went well for the Baron. In the middlegame the program showed to play on equal footing. It was not easy since the complications were difficult to estimate, not in a tactical way but in a positional way. An example of this consideration is given the diagram below:

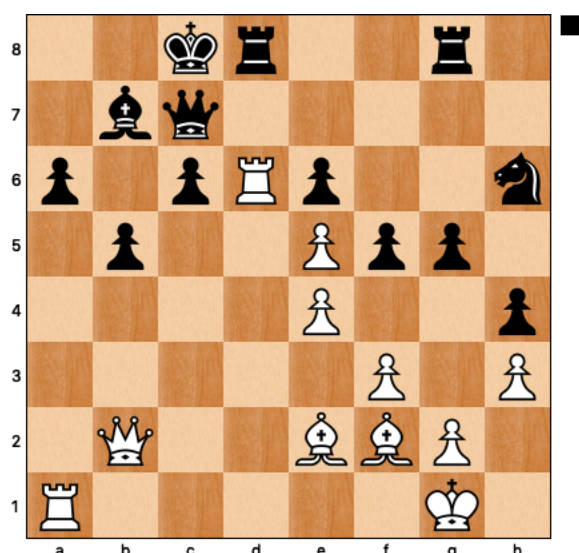


White had sacrificed a pawn and had received in exchange a positional pressure along the b-file, occupation of the important square d5 by a knight, a blocked d-pawn and an advantageous situation on the kingside. Black's threat is Bxf4 followed by g5, but white is to move and prevents this variation by 29. h4. The game then continued by 29. ... Bg7 30. Kh2 Rfc8 31. Qe2 Re8 32. Qg2 Qf7 33. Rb6 White is increasing the pressure on the black position. That is a good goal in itself but it is not sufficient for a win. After 15 more moves a draw was agreed.

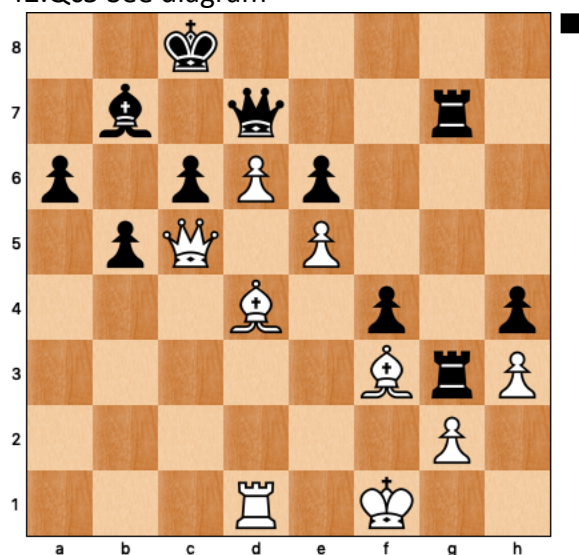
Jonny and Shredder played an intriguing game in which both players showed intentions to the defeat the opponent. They did so with sportif means that look aggressive on the board. Pawns were not regarded as important but structure, activity and king safety were the most important ingredients. According to these three measures the game went up and down. In the beginning white had the initiative and black architect the kingside with progressing of pawns. At the queenside white sacrificed two pawns for open squares, open lines and combinatorial possibilities. However the reply by black made white cautious on the kingside. Around move 24 the picture is clear, see the diagram:



It is not easy to mention but the white opportunities are on the queen side. It is easy to mention for black on the kingside. The main question is 'how dangerous is the black attack?'. Black played 24. ... O-O-O followed by 25. Ne5 Bxe5 26. dxe5 Rgg8 27. Rd6 See diagram



By this move white keeps the battle going. Since Rxd6, exd6, Qxd6 is followed by Qf6. It implies that black has no time for executing his plans on the kingside. Attention should be given to the intruder. 27. .. Rge8 28.Rad1 Nf7 29.Bc5 This implies the sacrifice of the exchange. Black must accept and thereafter should defend its position. 29. .. Nxd6 30.exd6 Qh7 31.e5 Rd7 32.Re1 Rg8 33.Qa2 Qg6 34.Bd1 Rf7 35.f4 Rfg7 Opening the g-file by gxf4 is not an option for black since the white bishop on f3 is a superb defender. Therefore the tension should stay in the pawn formation. 36.Bf3 Qf7 37.fxg5 Rxxg5 38.Kf1 R8g7 39.Rd1 Qd7 40.Qa3 f4 41.Bd4 Rg3 42.Qc5 See diagram



42. .. Rxf3+ Black returns the exchange sacrifice to white in order to have an open file to its disposal for counterplay since it is clear that the black bishop on b7 is not a participant in the battle. The game continued by 43.gxf3 Qd8 44.Bf2 Kd7 45.Be1 Subsequently black succeeded to free its blocked queenside pawns by sacrificing two pawns namely the a- and b-pawn. 45. ..a5 46.Qa7 Qa8 47.Qb6 Qc8 48.Rc1 b4 49.Qxa5 b3 50.Kf2 Ba6 51.Qb6 Qb7 52.Qxb7+ Bxb7 53.Rc3 c5 54.Rxb3 The resulting endgame then was materially in balance and the bishops of opposite colour guaranteed the draw.

The game Komodo – Chiron had an experimental nature which started already on the second move. After 1.d4 white played 2. Nd2, hence opening theory was written in this game. But

mechanism. 81. ... Qxa3 82.Rcf6 Qxb4 83.Rf7+ Kd8 84.Rf8+ Kd7 85.R8f7+ Ke6 86.R7f6+ Kd7 87.Rf7+ Ke6 88.R7f6+ Kd7 89.Rf7+.

Standing after round 5: 1. Komodo 3.5; 2. Shredder, Jonny, Chiron 3; 5. Ginkgo 3; 6. The Baron 0.5.

Round 6

1 Ginkgo	- Chiron	1/2
2 Komodo	- Shredder	1-0
3 Jonny	- The Baron	0-1

Round 7

1 Jonny	- Ginkgo	1/2
2 The Baron	- Komodo	0-1
3 Shredder	- Chiron	1/2

Round 8

1 Ginkgo	- Shredder	1/2
2 Chiron	- The Baron	1-0
3 Komodo	- Jonny

Round 9

1 Komodo	- Ginkgo
2 Jonny	- Chiron
3 The Baron	- Shredder

Round 10

1 Ginkgo	- The Baron
2 Shredder	- Jonny
3 Chiron	- Komodo